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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/594,069	09/26/2006	Kosuke Takasaki	Q97210	8873

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EXAMINER	
CHAN, SING P	

ART UNIT	PAPER NUMBER
1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/594,069	TAKASAKI ET AL.	
	Examiner	Art Unit	
	SING P. CHAN	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *25-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/26/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-24, drawn to an apparatus for joining substrate.

Group II, claim(s) 25-31, drawn to a method for joining substrate.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The special technical feature of supplying an elastic transcribing sheet with a coating of adhesive, pressing the transcribing sheet to a joint surface of the sealing substrate and peeling the transcribing sheet from the sealing substrate is known as shown for example by Herndon et al (U.S. 6,444,076), which discloses a method of assembly. The method includes providing a pre-applied adhesive layer between to release liners (Col 3, lines 3-14), which can be a film liner (Col 5, lines 56-64) and would be elastic. Therefore, the claims lack of special technical features and do not relate to a single general inventive concept.

3. During a telephone conversation with Paula Volla assistant to Mr. Darryl Mexie on April 2, 2009 a provisional election was made with traverse to prosecute the invention of group I, claims 1-24. Affirmation of this election must be made by applicant in replying to this Office action. Claims 25-31 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-7, 9-15 and17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. 6,285,064) in view of Herndon et al (U.S. 6,444,076), Lee (U.S. 6,660,562), Hayasaka et al (U.S. 7,089,986), Amo (U.S. 6,200,402), and Kato et al (U.S. 4,275,306).

Regarding claim 1, Foster discloses a method of forming chip scale optical image sensing integrated circuit. The method includes providing an adhesive matrix, a cover glass, a wafer, adhering the cover glass the wafer using the adhesive matrix, wherein the adhesive matrix includes opening coinciding with the location on the wafer that

contain micro lenses. (Col 2, lines 2-9) Herndon et al discloses a method of forming an optical device. The method includes providing a pre-applied adhesive or adhesive matrix forming between two release liners, removing the first release liner, applying the exposed adhesive to the optically transmissive substrate using a rubber coated roller (Col 3, lines 3-13), dicing or shaping the substrate with the pre-applied adhesive necessary for the optical product prior to removing the second release liner (Col 3, lines 14-17). Furthermore, Lee discloses the adhesive layer or matrix can be applied to the cover and then align with carrier and side wall or spacer (Col 4, lines 38-59).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the adhesive matrix between two release liner, removing the first release liner to applying the adhesive matrix to the substrate and later removing the second liner prior bonding to assembly to form the optical product as disclosed by Herndon et al and to apply the adhesive to the covering as disclosed by Lee in the method of Foster to provide reliable and efficient method of bonding substrates together for optical application such as optical memory products. (See Herndon et al, Col 2, lines 10-14) The combination of Foster and Herndon et al do not disclose an apparatus for forming the optical devices but one of ordinary skill in the art reading Foster and Herndon et al would appreciate any apparatus well known in the art can be used to perform the need steps. For example, Hayasaka et al discloses an apparatus for laminating optical disc. The apparatus includes a supply reel (22) with the label is sent to a peel plate (25) where the release liner is peeled from the protective label, the peeled label is sucked and held on the label holder (37), laminating the label to the disc

substrate on the table (36) with a laminating roller (38) on the holder (37), a front side peeling means (62) peels the protective film or release film from the label L laminated on the substrate (Col 9, lines 28-53). One of ordinary skill in the art reading Foster, Herndon et al and Hayasaka et al would appreciate the adhesive matrix of Foster can be provide between release liners as taught by Herndon et al and one of the liner being continuous and the other a protective sheet in the shape of the disc as taught by Hayasaka et al (See Hayasaka et al, Figure 3) and removing the continuous release liner by a peel plate, holding the adhesive with second or top release liner with a vacuum holder (37), laminating the adhesive with the top release liner onto the disc substrate using the vacuum holder (37), which includes a laminating roller (38) (Col 6, lines 29-35), and a front or top peeling means (62) peels the top release liner form the adhesive matrix.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the adhesive matrix of Foster between two release liners as taught by Herndon et al and one of the liner being continuous and the other a protective sheet in the shape of the disc as taught by Hayasaka et al (See Hayasaka et al, Figure 3) and removing the continuous release liner by a peel plate, holding the adhesive with second or top release liner with a vacuum holder (37), laminating the adhesive with the top release liner onto the disc substrate using the vacuum holder (37), which includes a laminating roller (38) (Col 6, lines 29-35), and a front or top peeling means (62) peels the top release liner from the adhesive matrix to expose the adhesive matrix as disclosed by Hayasaka et al to provide an apparatus for the method of Foster

as modified by Herndon et al to provide an apparatus for automatic lamination without bowing deformation and bubbles intrusion. (See Hayasaka et al, Col 1, lines 35-40) Foster as modified above is silent as to the apparatus includes a substrate supplying section, a parallelism adjusting section, substrate joining section, and a substrate conveying mechanism. However providing a substrate supplying section, substrate joining section, and a substrate conveying mechanism is well known and conventional as shown for example by Amo. Amo discloses an apparatus for laminating disc shaped substrates. The apparatus includes an adhesive application station X, which applies an adhesive matrix carried on a release liner with a top release liner in the shape of the adhesive matrix (Col 6, lines 28-41 and Figures 20(A)-20(C)) and is removed by a tape peeling means, a holding table (2) install on a rotary table (T), which the substrate is supplied and placed onto the holding table and the adhesive is applied to the substrate (Col 7, lines 16-30), the rotary table move the holding table with substrate to next station Y, where another substrate is supplied and overlaid and placed on the lower disc substrate, the rotary table move the holding table with both the disc substrate to station Z, where are pressed together to completely bonded onto each other (Col 12, lines 35-56).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an adhesive application station X, which applies an adhesive matrix carried on a release liner with a top release liner in the shape of the adhesive matrix and is removed by a tape peeling means, a holding table (2) install on a rotary table (T), which the substrate is supplied and placed onto the holding table and

the adhesive is applied to the substrate, the rotary table move the holding table with substrate to next station Y, where another substrate is supplied and overlaid and placed on the lower disc substrate, the rotary table move the holding table with both the disc substrate to station Z, where are pressed together to completely bonded onto each other as disclosed by Amo in providing an apparatus for the method of Foster as modified by combination of references to provide an automatic means to laminate two disc shape substrate, which are sequentially controlled as a whole and prevent fine bubbles. (See Amo, Col 2, lines 16-26) Foster as modified by combination of reference is silent as to a parallelism adjusting section. However, one of ordinary skill in the art reading Foster would appreciate the since the adhesive matrix includes openings, which would require alignment prior to joining or bonding. Kato et al discloses an apparatus for aligning a wafer and a mask or disc substrate. The apparatus includes a wafer carrier movable in parallel direction in the x, y, and θ and aligning the wafer to the mask according the alignment marks on both the mask and wafer. (Col 2, lines 27-42)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide apparatus for aligning the wafer and mask or disc substrate as disclosed by Kato et al to provide an apparatus for the method of Foster as modified by the combination of references to allow the alignment of the substrates without greatly increasing the allowable amount of error even if a pitch error is present. (See Kato et al, Col 1, lines 58-61)

Regarding claims 2 and 3, Foster discloses the device is an imaging sensor (Col 1, lines 20-30), the covering is a glass (Col 2, lines 14-15), and the adhesive matrix with the opening form flame-like spacers around each image sensor (Col 2, lines 5-9).

Regarding claims 4-7, 9 and 10, Foster as modified by Hayasaka et al discloses a top protective release liner peeling means (62), which includes a tape supply reel (65) for holding an adhesive tape (T), a refuse reel up reel (66) to real-up the adhesive tape (T), a peeling head (68) with two upper and lower guide rollers (71) or peeling roller, which the adhesive tape (T) is wound, the peel head (68) is capable of reciprocating movement in a horizontal direction between an initial position and its right position by a slider (72) and swinging up and down by driving of a cylinder (74) (Col 9, line 54 to Col 10, line 7). Furthermore, Hayasaka et al discloses the laminating roller (38) of the holder (37) is an elastic body with a hardness in the range of 30 to 70 (Col 7, lines 5-6). However, Hayasaka et al does not recited the clearance between the outer peripheral surface of the adhesive tape and the release liner during peeling and the diameter of the peeling roller (71), but one of ordinary skill in the art reading Hayasaka et al would appreciate the outer peripheral surface of the adhesive tape (T) would be in contact with the release liner and therefore, the clearance would be less than 0.1 mm and the diameter of the peeling roller can be logically determined through routine experimentation.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a tape supply reel (65) for holding an adhesive tape (T), a refuse reel up reel (66) to real-up the adhesive tape (T), a peeling head (68) with two

upper and lower guide rollers (71) or peeling roller, which the adhesive tape (T) is wound, the peel head (68) is capable of reciprocating movement in a horizontal direction between an initial position and its right position by a slider (72) and swinging up and down by driving of a cylinder, laminating roller (38) of the holder (37) is an elastic body with a hardness in the range of 30 to 70, the outer peripheral surface of the adhesive tape (T) would be in contact with the release liner and therefore, the clearance would be less than 0.1 mm and the diameter of the peeling roller can be logically determined through routine experimentation as disclosed by Hayasaka et al to provide an apparatus for the method of Foster as modified by combination of references to provide an apparatus for automatic lamination without bowing deformation and bubbles intrusion. (See Hayasaka et al, Col 1, lines 35-40)

Regarding claims 11-15, and 17, Foster as modified by Kato et al discloses a parallel alignment apparatus, which includes a laser source, intermediate lenses, a telecentric objective lens, objective lenses (11) effect light scanning on the mask and wafer, a photoelectric detecting system, lenses cooperates to re-form image, an observation system formed by beam splitter (5), a half mirror for directing light from light sources (19) and uses the laser to scan the alignment marks on both the mask and wafer and a electric system for measuring the amount of deviation form a predetermined positional relation between the mask and wafer from the scanning signal detected by the photodetector and for controlling the drive of the pulse motors for correcting the deviation. A timing circuit (54) includes an operation circuit for calculating the amount deviation at the position of the respective alignment mark and the amount of

driven by the pulse motor and a register for storing the result of the calculation. (Col 43 to Col 3, line 60)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide parallel alignment apparatus, which includes a laser source, intermediate lenses, a telecentric objective lens, objective lenses (11) effect light scanning on the mask and wafer, a photoelectric detecting system, lenses cooperates to re-form image, an observation system formed by beam splitter (5), a half mirror for directing light from light sources (19) and uses the laser to scan the alignment marks on both the mask and wafer and a electric system for measuring the amount of deviation form a predetermined positional relation between the mask and wafer from the scanning signal detected by the photodetector and for controlling the drive of the pulse motors for correcting the deviation. A timing circuit (54) includes an operation circuit for calculating the amount deviation at the position of the respective alignment mark and the amount of driven by the pulse motor and a register for storing the result of the calculation as disclosed by Kato et al to provide an apparatus for the method of Foster as modified by the combination of references to provide an apparatus to align the mask and wafer or disc substrates without increasing the allowable amount of error even if a pitch error is present. (See Kato et al, Col 1, lines 58-61)

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. 6,285,064) in view of Herndon et al (U.S. 6,444,076), Lee (U.S. 6,660,562), Hayasaka et al (U.S. 7,089,986), Amo (U.S. 6,200,402), and Kato et al (U.S. 4,275,306) as applied to claim 1 above, and further in view of Murakami et al (U.S. 4,248,750).

Foster as modified above is silent as to the release liners are antistatic plastic film. However, providing antistatic plastic film as a peelable film is well known and conventional as shown for example by Murakami et al. Murakami et al discloses a method of forming peelable films. The method includes providing a composition comprising an organopolysiloxane, an organohydrogenpolysiloxane, a metal catalyst and at least one component selected from alcohol-modified organopolysiloxanes and polyether-modified organopolysiloxanes (Col 2, lines 28-45), and coating the composition onto various type of glassine papers, polyethylene-paper laminates, and synthetic films (Col 1, line 62 to Col 2, line 4)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a composition comprising an organopolysiloxane, an organohydrogenpolysiloxane, a metal catalyst and at least one component selected from alcohol-modified organopolysiloxanes and polyether-modified organopolysiloxanes, and coating the composition onto various type of glassine papers, polyethylene-paper laminates, and synthetic films as disclosed by Murakami et al in the apparatus for the method of Foster as modified by combination of references to provide antistatic peelable film or release liner with reducing dust attraction and decreased peeling resistance. (See Murakami et al, Abstract)

9. Claims 16, 18-21, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. 6,285,064) in view of Herndon et al (U.S. 6,444,076), Lee (U.S. 6,660,562), Hayasaka et al (U.S. 7,089,986), Amo (U.S. 6,200,402), and Kato

et al (U.S. 4,275,306) as applied to claims 1 and 11 above, and further in view of Yoshikawa (U.S. 4,752,180).

Foster as modified by Kato et al discloses control circuit (57) for controlling the speeds, the amount of feed and the starting time of the pulse motors (58, 59, and 60) for moving the wafer in the directions of x-axis, y-axis, and θ in the amount of X, Y, and Θ respectively, calculated by the operation circuit (54) as measured by interval measuring circuit (52) (See Kato et al, Col 3, line 55 to Col 4, line 65), but is silent as to a swingably support mechanism for swinging a disc substrate into position for jointing. However, providing a swingably support mechanism for swinging the disc substrate into position for joining is well known and conventional as shown for example by Yoshikawa. Yoshikawa discloses a wafer bonding apparatus. The apparatus includes first and second supports (2 and 4), first and second chuck tables (20a and 20b) with disc first and second elastic bases (24a and 24b) with a plurality of holes (26a and 26b) (Col 2, lines 37-60), a motor (24) drive a pivot arm (40) counterclockwise through 180° and move the upper chuck table (20b) into position for bonding with the lower chuck table (20a) and the lower chuck table (20a) is horizontally shifted and pivoted by driving and controlling X, Y, and Θ motors (60, 62, and 66) to match orientation flats of both wafers, and a Z motor (64) is driven to move the lower chuck table (20a) into contact with the between the upper and lower wafers (Col 4, lines 1-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide apparatus includes first and second supports (2 and 4), first and second chuck tables (20a and 20b) with disc first and second elastic bases

(24a and 24b) with a plurality of holes (26a and 26b) (Col 2, lines 37-60), a motor (24) drive a pivot arm (40) counterclockwise through 180° and move the upper chuck table (20b) into position for bonding with the lower chuck table (20a) and the lower chuck table (20a) is horizontally shifted and pivoted by driving and controlling X, Y, and Θ motors (60, 62, and 66) to match orientation flats of both wafers, and a Z motor (64) is driven to move the lower chuck table (20a) into contact with the between the upper and lower wafers as disclosed by Yoshikawa in the apparatus for the method of Foster as modified by the combination of references to provide a mechanism to bond wafers without forming void. (See Yoshikawa, Col 1, lines 59-62)

Regarding claim 24, Yoshikawa discloses the wafer bonding apparatus is enclosed in a clean unit (10) (Col 2, lines 18-36).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to enclose the wafer bonding apparatus in a clean unit as disclosed by Yoshikawa in the apparatus for the method of Foster as modified by combination of references to provide a clean environment, which prevent dirt or contamination of the adhesive layer.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. 6,285,064) in view of Herndon et al (U.S. 6,444,076), Lee (U.S. 6,660,562), Hayasaka et al (U.S. 7,089,986), Amo (U.S. 6,200,402), Kato et al (U.S. 4,275,306), and Yoshikawa (U.S. 4,752,180) as applied to claim 21 above, and further in view of Koyanagi et al (JP 05-160340 A).

Foster as modified above is silent as to a pressure mechanism to control the pressure of the pressing chuck. However, providing a pressure control mechanism to control the pressure of the pressing chuck is well known and conventional as shown for example by Koyanagi et al. Koyanagi et al discloses an apparatus for stacking and bonding wafers. The apparatus includes a load cell (45) for detect the load applied to the ground chuck as the chuck applying a wafer to the lamination wafer and controlled by a closed loop control circuit (63) to a predetermined load. (See Machine Translation of JP 05-160340, Paragraph 24)

It would have been obvious to one ordinary skill in the art at the time the invention was made to provide a load cell (45) for detect the load applied to the ground chuck as the chuck applying a wafer to the lamination wafer and controlled by a closed loop control circuit (63) to a predetermined load as disclosed by Koyanagi et al in the apparatus for the method of Foster as modified by combination of references to provide an apparatus to laminate wafers to a super high degree of accuracy. (See Machine English Translation of JP 05-160340, Paragraph 1)

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foster (U.S. 6,285,064) in view of Herndon et al (U.S. 6,444,076), Lee (U.S. 6,660,562), Hayasaka et al (U.S. 7,089,986), Amo (U.S. 6,200,402), and Kato et al (U.S. 4,275,306) as applied to claim 1 above, and further in view of Glennon (U.S. 4,243,500).

Foster as modified above is silent as to providing an illumination station for irradiating light to start the curing of the adhesive before the adhesive is applied to the substrate. However, curing the adhesive either be applied to the intended carrier

surface or on the intended protective release sheet and then curing using UV or other radiation utilized in polymerization (Col 7, lines 20-27). Therefore, one of ordinary skill in the art reading Glennon as well as Foster as modified by the combination of reference would appreciate the adhesive can be applied to a protective release paper or liner and then curing using radiation prior to application to the substrate or after application of the adhesive to the substrate and would logically provide UV curing station either before the adhesive is applied to the final substrate or after, which are interchangeable.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to cure the adhesive either before or after application to the final substrate as disclosed by Glennon and to logically provide a curing station at the point either before or after application of the adhesive to the final substrate in the apparatus for the method of Foster as modified by combination of references, which is interchangeable.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SING P. CHAN whose telephone number is (571)272-1225. The examiner can normally be reached on Monday-Thursday 7:30AM-11:00AM and 12:00PM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sing P Chan/
Acting Examiner of Art Unit 1791

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791